<u>WHAT IS CLAIMED IS</u>:

1. A central access device to enable transmission of data between at least one user device and a gateway service device via a communication network and at least one remote access device, said central access device comprising:

a first module configured to receive from said communication network a packet including said data, a first address associated with said user device, and a second address associated with said at least one remote access device, to remove said second address from said packet, and to transmit said data and said first address to said gateway service device; and

a second module configured to identify said first address and said second address, and to store said first address and said second address in a memory such that said first address corresponds to said second address.

2. The central access device according to claim 1, wherein said at least one user device communicates said data and said first address to said at least one remote access device.

3. The central access device according to claim 1, wherein said first address is of a type suitable for identifying a device coupled to a switched communication network.

4. The central access device according to claim 1, wherein said second address is a network-routing address.

5. The central access device according to claim 1, wherein said packet indicates that said at least one user device is the source of said data.

6. The central access device according to claim 1, wherein said packet indicates that said at least one remote access device transmitted said packet to said central access device via said communication network.

7. The central access device according to claim 1, wherein said packet further includes a third address associated with said gateway service device.

8. The central access device according to claim 7, wherein said packet indicates that said gateway service device is the intended recipient of said data.

9. The central access device according to claim 1, wherein said packet further includes a third address associated with said central access device.

10. The central access device according to claim 9, wherein said third address indicates that said central access device is the intended recipient of said packet.

11. The central access device according to claim 1, further including a third module configured to assign a logical port to said at least one user device and to inform said gateway service device of said logical port assigned to said at least one user device.

12. The central access device according to claim 11, wherein said logical port assigned to said at least one user device is selected from among a plurality of available logical ports.

13. The central access device according to claim 11, wherein said logical port is selected based on said second address.

14. The central access device according to claim 11, wherein said logical port is dynamically assigned to said at least one user device.

15. The central access device according to claim 11, wherein said at least one user device is associated with a public network address that includes said logical port assigned to said at least one user device.

16. The central access device according to claim 15, wherein said public network address is associated with said at least one user device by said gateway service device.

17. The central access device according to claim 15, wherein said public network address includes of a second public network address associated with said gateway service device.

18. The central access device according to claim 1, wherein said at least one user device is associated with a unique private network address.

19. The central access device according to claim 1, wherein said first address is an Ethernet MAC address.

20. The central access device according to claim 1, wherein said packet is an IP packets and said second address is an IP address.

21. The central access device according to claim 1, wherein said data is encapsulated within a frame containing said first address.

22. The central access device according to claim 1, wherein said packet includes a header containing said second address that precedes said first address and said data.

23. The central access device according to claim 1, further including a second memory storing information related to the time at which said central access device received said packet.
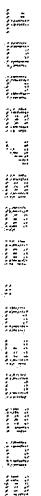
24. A central access device according to claim 1, wherein a plurality of user devices communicate data to said at least one remote access device.

25. The central access device according to claim 24, a third module configured to uniquely assign a logical port to each of said plurality of user devices and to inform said gateway service device of the unique logical port assigned to one of said plurality of user devices.

26. The central access device according to claim 1, wherein a plurality of data are communicated between said at least one user device and said gateway service device, said central access device further including a second memory storing information related to the time at which

said client access device last received a packet indicating that said at least one user device was the sender of said data message.

27. A central access device according to claim 1, wherein said at least one user device communicates data to a plurality of remote access devices.

28. A central access device to enable transmission of data between at least one user device and a gateway service device via a communication network and a remote access device, said central access device comprising:

   a first module configured to receive from said gateway service device said data and a first address associated with said at least one user device, and to transmit to said communication network a packet including said data, said first address, and a second address associated with said remote access device; and

   a second module configured to identify said first address, and to retrieve said second address from a memory in which said first address is correlated to said second address.

29. The central access device according to claim 28, wherein said at least one user device communicates said data and said first address to said at least one remote access device.

30. The central access device according to claim 28, wherein said first address is of a type suitable for identifying a device coupled to a switched communication network.

31. The central access device according to claim 28, wherein said second address is a network-routing address.

32. The central access device according to claim 28, wherein said packet indicates that said at least one user device is the intended recipient of said data.

33. The central access device according to claim 28, wherein said packet indicates that said packet is to be transmitted to said at least one remote access device by said central access device via said communication network.

34. The central access device according to claim 28, wherein said packet further includes a third address associated with said gateway service device.

35. The central access device according to claim 34, wherein said packet indicates that said gateway service device is the source of said data.

36. The central access device according to claim 28, wherein said packet further includes a third address associated with said central access device.

37. The central access device according to claim 36, wherein said packet indicates that said central access device is the sender of said packet over the communication network.

38. The central access device according to claim 28, further including a third module configured to assign a logical port to said at least one user device and to inform said gateway service device of said logical port assigned to said at least one user device.

39. The central access device according to claim 38, wherein said logical port assigned to said at least one user device is selected from among a plurality of available logical ports.

40. The central access device according to claim 38, wherein said logical port is selected based on said second address.

41. The central access device according to claim 38, wherein said at least one user device is associated with a public network address that includes said logical port assigned to said at least one user device.

42. The central access device according to claim 41, wherein said public network address is assocaiated with said at least one user device by said gateway service device.

43. The central access device according to claim 41, wherein said public network address includes a second public network address associated with said gateway service device.

44. The central access device according to claim 28, wherein said at least one user device is associated with a unique private network address.

45. The central access device according to claim 28, wherein said first address is an MAC address.

46. The central access device according to claim 28, wherein said packet is an IP packet and said second address is an IP address.

47. The central access device according to claim 28, wherein said data is embedded within a frame containing said first address.

48. The central access device according to claim 28, wherein said packet includes a network-routing header containing said second address that precedes said first address and said data.

49. The central access device according to claim 28, wherein said first address is associated with one of a plurality of said user devices.

50. The central access device according to claim 49, wherein each of said plurality of user devices is associated with a unique private network address.

51. A central access device for facilitating communication between a user device and a gateway service device, said central access device comprising:

a first module configured to receive from a first communication network a first packet including data generated by said user device and a user device address, to receive from a second communication network a second packet including data generated by said gateway service device and said user device address, to extract from said first packet said data and said user device address, to add to said second packet a second packet header including a

remote access device address, to transmit said first packet to said gateway service device over said second communication network, and to transmit said second packet to said remote access device over said first communication network;

a memory; and

a second module configured to store in said memory as corresponding said user device address and said remote access device address, wherein

said data generated by said user device is transmitted to said remote access device over a third communication network.

52. The central access device according to claim 51, wherein said third communication network is a switched communication network and said user device address is a switching address.

53. The central access device according to claim 52, wherein said third communication network is a local area network and said user device address is a MAC address.

54. The central access device according to claim 51, wherein said second communication network is a switched communication network and said user device address is a switching address.

55. The central access device according to claim 54, wherein said second communication network is a local area network and said gateway service device is identified on said local area network by a MAC address.

56. The central access device according to claim 51, wherein said first communication network is a routed communication network and said remote access device address is a routing address.

57. The central access device according to claim 56, wherein said first communication network is an Internet and said remote access device address is an IP address.

58. The central access device according to claim 51, wherein said first packet further includes a first packet header that includes the remote access device address.

59. The central access device according to claim 53, wherein said first packet header further includes a central access device address.

60. The central access device according to claim 51, wherein said first packet further includes an address identifying said gateway service device on said second communication network.

61. A central access device comprising:

means for receiving data generated by one of a plurality of user devices from a routed communication network, each of said user devices communicatively connected to one of a plurality of remote access devices connected to said communication network;

means for transmitting said data to a gateway service device over a switched communication network;

means for determining from which one of said plurality of user devices said data was received;

means for determining which one of said plurality of remote access devices is communicatively connected with said one of said plurality of user devices;

means for storing information indicating which remote access device is communicatively connected to each of said plurality of user devices.

62. A central access device comprising:

means for receiving data generated by a gateway service device;

means for determining to which one of a plurality of user devices said data is to be transmitted;

means for determining which one of a plurality of remote access devices is
communicatively connected to said one of said plurality of user devices, each of said remote
access devices and said central access device connected to a communication network; and

means for transmitting said data to said one of said plurality of remote access devices.

63. A method for transmitting data between a user device and a gateway service device, said
method comprising:

transmitting said data and a user device address from said user device to a first access
device;

transmitting said user device address, said data and a first access device address from said
first access device to a second access device via a communication network;

transmitting said data and said user device address from said second access device to said
gateway service device; and

by said second access device, storing as corresponding said user device address and said
first access device address.

64. The method according to claim 63, further including, by said user device, encapsulating said
data within a frame including said user device address.

65. The method according to claim 63, wherein said data is sent to said first access device via a
first switched communication network.

66. The method according to claim 65, wherein said first switched communication network is a
local area network and said user device address is a MAC address.

67. The method according to claim 63, further including, by said first access device, forming a
packet including a header that precedes said frame and said data, said header including said
first access device address.

68. The method according to claim 67, further including, by said second access device, removing said header from said packet.

69. The method according to claim 63, further including assigning a logical port to said user device.

70. The method according to claim 69, wherein said logical port is assigned to said user device by said second access device, and further including, by said second access device, informing said gateway service device of said logical port assigned to said user device.

71. The method according to claim 69, wherein said user device is assigned a private network address, and further including translating said private network address with a public network address including said logical port assigned with said user device.

72. The method according to claim 71, further including, by said gateway service device, generating said public network address by combining said logical port with a second public network address associated with said gateway service device.

73. The method according to claim 63, further including storing information related to the time at which said second access device received said data.

74. The method according to claim 73, further including determining whether a user device session should be terminated based on whether a timeout period has expired since said data was received by said second access device.

75. The method according to claim 63, further including, by said gateway service device, providing a gateway service, wherein said gateway service is at least one of authenticating a user password, verifying user credit card information, serving gateway content, determining whether a user device session should be terminated, and maintaining billing information associated with said user device.

76. The method according to claim 63, further including informing said first access device of a second access device address, wherein said second access device address is transmitted to said second access device with said data, said user device address and said first access device address.

77. The method according to claim 76, wherein said first access device is informed of said second access device address upon installation.

78. The method according to claim 76, informing said first access device of said second access device address including, by said second access device, sending a message including said second network address to said first access device.

79. The method according to claim 78, wherein said message is sent periodically.

80. The method according to claim 63, wherein said user device transmits a gateway service device address to said first access device with said data and said user device address.

81. The method according to claim 80, further including informing said user device of said gateway service device address.

82. The method according to claim 81, wherein said user device is informed of said gateway service device address by said first access device.

83. The method according to claim 63, wherein said user device transmits a recipient address to said first access device with said data and said by said user device address, and said method further including, by said first access device, determining whether said gateway service device is identified as the intended recipient of said data based on said recipient address.

84. The method of claim 63, further including, by said user device, embedding said data in a frame including said user device address.

85. The method according to claim 84, wherein said user device address is a MAC address.

86. The method according to claim 63, further including, by said first access device, generating a header containing said first access device address to precede said data and said user device address.

87. The method according to claim 86, wherein said header is an IP header and said first access device address is an IP address.

88. A method for transmitting data between a user device and a gateway service device, said method comprising:

transmitting data and a user device address from said gateway service device to a second access device;

by said second access device, retrieving from a memory a first access device address corresponding to said user device address, said first access device address identifying a first access device communicatively connected to said user device;

transmitting said data and said user device address from said second access device to said first access device via a communication network; and

transmitting said data from said first access device to said user device.

89. The method according to claim 88, wherein said user device is associated with a private network address, and further including translating said private network address into a public network address including said logical port assigned to said user device.

90. The method according to claim 88, further including assigning a logical port to said user device.

91. The method according to claim 90, wherein said logical port is assigned to said user device by said second access device, and further including, by said second access device, informing said gateway service device of said logical port assigned to said user device.

92. The method according to claim 90, further including, by said gateway service device, generating a public network address associated with said user device by combining said logical port with a second public network address associated with said gateway service device, and associating said public network address with said user device.

93. The method according to claim 89, further including, by said gateway service device, receiving said data and said public network address associated with said user device from a second communication network, and further including, by said gateway service device, translating said public network address to yield said private network address associated with said user device.

94. A system for transmitting data, said system comprising:

a plurality of user devices, each associated with a user device address;

a plurality of remote access devices each associated with a RAD address, wherein each of said plurality of user devices is configured to send said data and said user device address to at least one of said plurality of remote access devices;

a central access device configured to receive from at least one of said plurality of remote access devices said data, said user device address associated a sending one of said plurality of user devices, and said associated RAD address; and

a gateway service device configured to receive from said central access device said data and said user device address associated with said sending one of said plurality of user devices, wherein

said central access device includes a memory storing a correspondence between each user device address and a RAD address associated with the at least one of said plurality of remote access devices is communicatively connected.

95. The system according to claim 94, wherein said central access device and said plurality of remote access devices are communicatively connected by a communication network.

96. The system according to claim 95, wherein said gateway service device is communicatively connected to said communication network.

97. The system according to claim 95, wherein said communication network is the Internet.

98. The system according to claim 94, wherein each of said plurality of remote access devices is communicatively connected to at least one of said user devices by a switched communication network.

99. The system according to claim 98, wherein said switched network in a local area network and each of said user device addresses is a MAC address.

100. The system according to claim 98, wherein a wireless communication link is established between one of said plurality of user devices and one of said plurality of remote access devices.

101. The system according to claim 94, wherein said gateway service device and said central access device are communicatively connected by a switched communication network.

102. The system according to claim 101, wherein said switched communication network is a local area network.

103. The system according to claim 94, wherein said central access device includes a first module configured to remove said network-routing header from a received network-routable packet to leave said LAN-switchable packet, and further configured to add said network-routing header to a received LAN-switchable packet to produce said network-routable packet.

104. A system for transmitting data, said system comprising:

a gateway service device communicatively connected to said communication network;

a plurality of user devices, each of which has a unique user device address;

a plurality of remote access devices, each of which has a unique RAD address, each of said user devices communicatively connected to at least one of said plurality of remote access devices; and

a central access device having a memory storing information indicating to which remote access device each of said user devices is communicatively connected, wherein

said gateway service device receives from said communication network said data, for which one of said plurality of user devices is the intended recipient,

said gateway service device sends said data to said central access device,

said central access device retrieves from said memory the identity of the one of said plurality of remote access devices communicatively connected with said intended recipient and transmits said data to said identified remote access device, and

said identified remote access device transmits said data to said intended recipient.

105. A method for providing a gateway service to a user device, said method comprising:

establishing a communication link between said user device and a remote access device, said remote access device communicatively connected to a central access device and said central access device communicatively connected to a gateway service device;

establishing a communication session between said user device and a third party communicatively connected with said gateway service device through a communication network;

by said central access device, storing information indicating that said user device is communicatively connected to said remote access device;

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by said gateway service device, providing said gateway service during said

communication session, providing said gateway service including receiving data from said

third party and communicating said data to said user device via said central access device and

said remote access device.

106. The method of claim 105, further including at least one of authenticating a user password,

verifying user credit card information, serving gateway content, determining whether a client

session involving said user device should be terminated, and maintaining billing information

associated with a user device.